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DECEMBER OBSERVATIONS OF HALLEY'S COMET.

Halley's Comet was observed with the 36-inch refractor on the nights of December 14th, 15th, 17th, and 18th. The measures of position show that the correction to Father SEARLE'S ephemeris was then about $+ 5^s$ in right ascension and about $+ 0'.2$ in declination. The comet appeared to be nearly round, the coma being $1' \pm$ in diameter, with a sharp nucleus. The halo around the comet extended over an area nearly $15'$ in diameter, and was decidedly brighter and somewhat more extended on the following side. No other evidence than this could be found of a tail. The comet was estimated to be of the tenth magnitude. It was easily detected with the 3-inch finder of the 12-inch telescope on the night of December 10th.

December, 1909. R. G. AITKEN.

NOTE ON HALLEY'S COMET.

Halley's Comet is increasing rapidly in brightness. In the middle of December it was an easy object in a 6-inch telescope, and could be made out in a 3-inch. At this time the effective magnitude of the comet as a whole must have been about the tenth magnitude. The computed brightness of the comet on December 16th, according to CROMMELIN, was $13^m.0$ on the assumption that the brightness varies as $\frac{1}{r^2 \Delta^2}$, and $12^m.0$ on the assumption that the brightness varies as $\frac{1}{r^4 \Delta^2}$. From this it will be seen that the comet's increase in brightness has been quite rapid, and departs very far from the value given by the ordinarily accepted formula $\frac{1}{r^2 \Delta^2}$. Comets are so erratic in this respect that no fixed formula of light-increase can be adopted. From a long series of estimates by various observers on Comet 1898 I,[1] the writer found that this comet followed quite closely the purely empirical formula $\frac{1}{r^7 \Delta^2}$; using this ratio, the calculated magnitude of Comet Halley on December 16th would have been about 10.6.

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[1] *A. N. Erg. H.*, No. 3.

Photographs taken with the Crossley reflector on December 12th, 13th, and 14th recorded a coma of about 1′ in diameter, with an exposure of thirty-five minutes; an exposure of two hours shows the surrounding halo, though very faintly in the outer portions, with a diameter of about 5′. These plates show also very faint traces of a short tail, following and directed slightly to the north. As the angle at the comet between the radius vector and the line connecting the comet and the earth was less than 2° on this date, this may correspond to a tail of moderate length.

The following ephemeris has been computed by Father SEARLE, assuming perihelion as April 19.69.

		α		δ	
1910 January 2	2^h	14^m	37^s	+11°	23′.3
4		7	50	11	5.2
6	2	1	21	10	47.8
8	1	55	11	10	31.1
10		49	21	10	15.3
12		43	49	10	0.4
14		38	35	9	46.4
16		33	39	9	33.4
18		29	0	9	21.3
20		24	38	9	10.2
22		20	31	9	0.0
24		16	38	8	50.6
26		12	59	8	42.1
28		9	34	8	34.5
30		6	21	8	27.6
February 1		3	18	8	21.5
3	1	0	25	8	16.2
5	0	57	43	8	11.5
7		55	10	8	7.5
9		52	46	8	4.0
11		50	29	8	1.0
13		48	19	7	58.7
15		46	15	7	56.9
17		44	17	7	55.5
19		42	24	7	54.5
21		40	36	7	53.8
23		38	52	7	53.5
25		37	11	7	53.6
27		35	33	7	53.8
March 1		33	57	7	54.3
3		32	23	7	54.9
5	0	30	51	+7	55.8

According to elements by Dr. SMART, the comet will be closest to the Earth on May 20th, when its distance will be 14,300,000 miles. There is considerable probability that the Earth will pass through the tail on May 18th.

H. D. CURTIS.